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THE  
PLOTTER

CLACKAMAS COUNTY AREA T/S  
USERS GROUP  
NEWS LETTER

VOLUME 5            \*\*\*            NUMBER 4  
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                      \*\*\*\*\*  
APRIL 1987

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MEETING

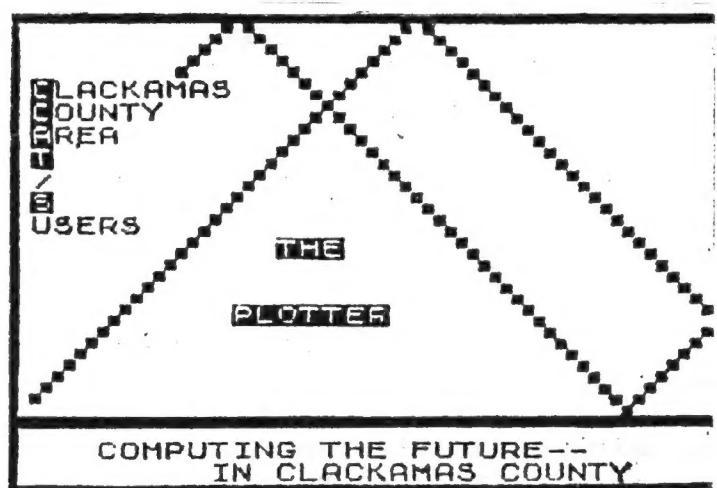
The APRIL meeting will be:

on: FRI., APRIL 10 1987

at: 7:30 P.M.  
in: COMMUNITY ROOM  
    FAR WEST FEDERAL S & L  
    OREGON CITY SHOPPING CENTER  
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Chairmans' Corner

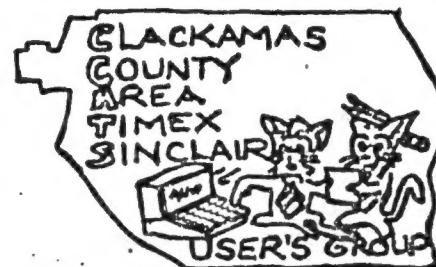
Membership seems to have declined some. If you know of a T/S user who is not enjoying a membership in our club, bring him next meeting!

The RMG BBS seems to be the place to get and exchange T/S info. If you have a modem, give the board a call at 656-8072. Be sure to call after 10:00PM. Let's use this one! There have two T/S boards that folded and one never started, for lack of local support from our own members, in the past year.

The MC-SIG is off to a good start. Get in on the fun now, before you get too far behind.

One last word. Let's support all of the suppliers, magazines, etc. that you can. I would hate to see the projections come true that were voiced by SMUG in our last newsletter.

Until next meeting, keep on byte-ing into your computers!



**SECRETARY'S  
SECRETS**  
by Jack Armstrong

At 7:45, Chairman Syd Wyncoop called the meeting to order. He introduced a new member, Dick Woodbury and the guests. All present stood in turn to introduce themselves. Old Business matters included the announcement of the Machine Code SIG meeting at PCC on the 14th and Syd commented on the article he had in last month's Plotter. He discussed problems encountered with cheap ribbons for printers. There was further discussion and comments by Mike Carver. A discussion followed about the chain-tapes and their whereabouts. Rod announced that his BBS is up and running well, with callers from all over the country. To log on, call 656-8072 from 10 p.m. to 10 a.m. Dennis brought up the subject of starting a new segment to our meetings by having members bring a subject for discussion; a routine to discuss or a program development to explain and open up for discussion. There was lively further discussion and Dennis will start it off next month and Dick Wagner will follow. Each month a member will present something that can be the basis for improving understanding of our computers and their care and feeding. The subject stirred comments from Mike Carver, Dennis Jurries, Bill Dunlop, Rod Gowen and others. Rod then announced that there will soon be a Desk-top Text Editor by Lempke Software and one from Spelding that may be available from RMG. Syd commented on an article about an Amstrad IBM clone. Rod is trying to get a dealership. Dick Wagner opened a discussion on the Plotter format. Dick is going on vacation soon and also put forth a request for a modem cable with the edge connector intact. If anyone has one or can put him onto someone who has one available, get in touch with him in Canby. Jack asked about the member list that is to be printed in the Plotter. It should appear soon in these pages. Don commented on the idea of passing around little programming tips and routines to be a good idea for all of us. The meeting adjourned at 8:50 p.m.

**PORLTAND AREA TIMEX/SINCLAIR  
USERS (PATS) -- CORNER**  
by Michael E. Carver

Our last "machine code" session was attended by 6 brave souls. Syd Wyncoop is doing a yeoman's job in teaching us the in's and out's of machine code.

Some of the subjects covered at this session were: Terminology (Assembly, mnemonics, OP code, etc.) -- Addresses (High and Low bytes) -- Registers of the Z80 CPU -- Memory map of the T/S 2068.

Since we were all eager to get past the introductions and onto the main course (i.e., the meat and potatoes), it was decided to meet twice a month, on the second and fourth Saturdays, for a couple of months. Please book your calendars for the following dates:

April 11 & 25  
May 9 & 23  
June 13

These will be the next 5 sessions for budding machine codists. The meeting times for these sessions is 1pm to 4pm. REMEMBER: Please bring your computer, tape recorder, TV or monitor, and assembler software to the next meeting.

We should all be on the road to successful machine coder's bliss by the beginning of summer.

If you would like to try out your assembler before the next class, here is a little ditty:

```
ORG 30000
DEFB 73,32,99,97
DEFB 110,32,108
DEFB 101,97,114
DEFB 110,32,77
DEFB 46,67,46
start LD B,16
        LD HL,30000
loop  LD A,(HL)
      RST #10
      INC HL
      DJNZ,loop
      RET
```

To see the results -- RANDOMISE USR 30016:  
PAUSE 0

## PATCH FOR \*D & \*E COMPILEATION BUG

### TIMEMACHINE Users:

It has come to our attention that there is a small bug in the version of TIMEMACHINE which you have. Most users will not even be aware of this bug because it is rather obscure. You will only encounter this bug when you are compiling very large programs and are forced to use \*D & \*E to compile the data statements separately. Please follow the instructions below to correct your copy of TIMEMACHINE.

After the program has loaded (while the backup prompt is still on the screen), break into the program by deleting the left quote and entering STOP (SYMBOL SHIFT A).

Add the following lines to Basic:

### SPECTRUM VERSION

```
20 FOR i=1 TO 4
21 READ address, n
22 FOR j= 0 TO n-1
23 READ byte: POKE address+j, byte
24 NEXT j
25 NEXT i
100 DATA 23952,4
101 DATA 205,240,133,0
102 DATA 29145,4
103 DATA 205,240,133,0
104 DATA 29906,4
105 DATA 205,247,92,0
106 DATA 34288,12
107 DATA 17,0,0,205,247,92,192,237,
91,241,68,201
```

### TS 2068 VERSION

Lines 20 to 25 same as Spectrum.

```
100 DATA 26834,4
101 DATA 205,0,130,0
102 DATA 32070,4
103 DATA 205,0,130,0
104 DATA 32858,4
105 DATA 205,71,104,0
106 DATA 33280,12
107 DATA 17,0,0,205,71,104,192,237,
91,241,68,201
```

Now, type GOTO 8000 and ENTER to make a new backup copy

## A PRODUCT REVIEW

### Zebra Systems WC2050 to RS232 Kit

As most of you know, I am all thumbs, when a soldering iron is placed in my hands. Therefore, it was with great trepidation and a spare WC2050 board (one I could afford to ruin) that I attempted this project.

I must give Zebra Systems an 'A' for simplicity. You need to solder a chip socket onto the asynchronous chip on the modem board, piggy back style. This chip is the largest one and the only one that is the same size as the socket, so it was easy to identify, even for me.

There is one jumper wire that needs soldering, to the LED and three traces to cut. Cutting the traces was the hardest part of the job, as there was not much room to work.

That completed my construction project. I don't yet have my serial keyboard to test it with, so I hope it works!

The instructions were the same ones published in Time Designs Magazine, Mar/Apr '86, if you want to go it from scratch. I found the kit and instructions very easy to follow.

If I could do this, I am sure any of you can. Zebra has made this a very 'user friendly' project.

by Syd Wyncoop

## TEST TS 1000 PAC

```
10 PRINT " 16 K RAM TESTS"
15 PRINT
20 PRINT PEEK 16389
25 PRINT "ON RUN YOU SHOULD SEE
E 128 ON THE SCREEN"
30 PRINT "OR TYPE THIS ONE IN
AND ON RUN, 16K WILL BE DISPLAYED"
35 PRINT
40 POKE 18000,33
41 POKE 18001,11
42 POKE 18002,0
43 POKE 18003,57
44 POKE 18004,68
45 POKE 18005,77
46 POKE 18006,201
47 PRINT (USR (18000)-16373)/1
824;"K"
```

## BITS & BYTES

By: ROD GOWEN

Heard any TS related news lately? Did you get any information in the mail from other users, user groups, or vendors that may be of interest to our readers? If so, why not share it with us? We need all of the help that we can get. Please send any info that you might have to: Rod Gowen, C/O CCAT/S, 1419 1/2 7th Street, Oregon City, OR 97045, or, phone in at: 503/655-7484, 10 AM-10 PM weekdays. I know that the entire user group will appreciate it!

CAMBRIDGE Z88-is the name that has been seen on the newest release from Clive Sinclair. As we reported last time, this is a portable unit that weighs in at under 2 lbs and runs on 4 AA batteries. According to what we have read, it has 32K of ROM and has 3 memory expansion slots that will take up to 1 MB each! It comes with fully integrated software. It will have a word processor, a spreadsheet and a diary/calendar. The calendar will be for appointments, etc. You can be in the middle of writing text with the word processor, switch to your appointment calendar and switch back to the wp and be right where you left off! The unit will have 32K of Ram and you will be able to expand that with Rom or Eprom cartridges that plug in on the front of the unit, just below the keyboard. These come in sized from 16K to 128K. They say that there will be a 1MB cartridge available in the future to give you 3 MB in a laptop! The Ram cartridges will hold their data even when the computer is turned "off". However if you unplug the cartridge, you lose it all. The display will be a "Superflex" LCD with 80 columns by 8 lines. It can read MS DOS data even though it is a Z80 based machine. At a price of about \$300.00, it seems as though it will be a nice unit. We will post you on further information as we get it.

RMG BBS-has been online for about 2 months now and has had a fair amount of interest shown in it. It does seem odd, though, that with all of the interest shown in a BBS for the User Group a few months ago, that we don't see any more of our own people using it! There is a dedicated message base that has only had 7 messages written into it in 2 months! It costs you nothing except a few minutes to call and leave a note, a bit of news for the newsletter or just to say "Hi!". Most of the 20 or so users are from out of town. If they can check in once a week from as far away as Florida and New York, why can't our own members call?

FEST '87-is coming along great! We hear from the people in Indy at least once a week now. There are 24 tables for vendors and user groups paid for to date and another 10 to 12 have expressed their intent to sign up. The Fest has over 6000 square feet of space. There will be a flea market, the main floor and 2 small rooms for the lectures and seminars. Zebra has signed up for 4-5 tables and is bringing a 2 ton truck full of product to SELL! Even Curry Computer is coming as well as Ed Grey of G&C Computer products in LA will be there! Should be quite a turn out this year!

1988 CLONE?-RMG has one in stock! It is the former UNISONIC FUTURA 8300 and is now known as YOUR COMPUTER PC8300. It has sound, a monitor port, tv port and a joystick port. You can use a 1988 Rampack and the 2040 printer. Most 1988 BASIC programs will run directly but machine code may need to be modified. It has 2K Ram and 8K Rom. The keyboard is similar to the 1580 keyboard. There are 42 keys, some of which have graphics for animation! If you are interested, give them a call at: 503/655-7484.

We'll have more BITS & BYTES for you next time! Until then,  
KEEP ON COMPUTIN'-----

## MUSIC WITH BEEP

Dick Wagner

It is easy to determine the pitch of a musical note with BEEP generated by our 2068 computers. Based on the standard note A (440 Hz), middle C is 261.624 Hz. (See table page 187-189 in 2068 manual).

The pitch, based on middle C, is calculated by the computer with the formula  $f = 2^{P/12} \cdot f_c$ , where  $f_c$  is the frequency of middle C,  $p$  is the pitch and  $f$  is the frequency in Hertz of the note. This formula is changed to solve for pitch,  $p$ :  $p = 12 \cdot \ln(f/261.624) / \ln 2$ , where LN is the natural logarithm (base e) which is shifted key Z,  $f$  is the note frequency in Hz. Don't be alarmed by logarithms because the computer knows all about them. Use this program to print pitch values of desired notes:

```
10 INPUT "Frequency in Hz ";f
20 LET P=12*LN (F/261.624)/LN 2
30 PRINT f;" ";"Pitch value=";p
40 GO TO 10
```

From the table, select the frequency of some notes. Example:  
261.624 ( $p=0$ ) octave #1  
523.248 ( $p=12$ ) octave #2  
1046.496 ( $p=24$ ) octave #3  
2092.992 ( $p=36$ ) octave #4  
4185.984 ( $P=48$ ) OCTAVE #5  
( $p$  is progressing 12 notes each time). Try other combinations such as D (293.664) and continue the same way. You will see that the pitch is in steps of +12 each time.

Now determine the relationship between whole notes (not sharp or flat). C thru B will be in the order of 1,2,4,7,9,11,&12 (close). The missing numbers are the semitones 3,5,6,8,&10 and they are the sharps/flats. Calculations for notes below middle C will have - values.

The above relationship is a music standard. I think it is now clear about programming BEEP as far as music is concerned- the designers based the tone on the standard musical scale with BEEP  $t,p$  as a note of duration  $t$  and frequency corresponding to the pitch where pitch = 0 (261.624 Hz). This also

explains the minus values used for  $p$ .

Note duration is important in music. The use of click in most computer programming is of short duration and is not musical. When composing on the computer, make a table of the notes (as letters) and the corresponding pitches for reference. Also assign duration numbers for proposed timing, such as whole note ( $T=2$ ), 1/2 note ( $T/2=1$ ), 1/4 note ( $T/4=1/2$ ), 1/8 note ( $T/8=1/4$ ) & 1/16 note ( $T/16=1/8$ ). This puts all of the note durations on terms of  $T$  so if it is desired to redefine  $T$  then all durations are changed automatically.

The commonly used POKE 23609,n varies the note duration so this poke won't work in music. The reader might check out my findings about the pitch of this note. I decided that BEEP t,34.51 seemed to duplicate the pitch. Use a very short duration to match. I changed the formula to  $f=261.624 * ^{(P/12)}$  and calculated  $f = 1920.39$  which is about B in octave #3.

Fractional values of duration and pitch work with BEEP. The definition for BEEP  $x,y$  is  $x$  in seconds and  $y$  in pitch semitones above or below middle C and my experiments bear this out.

The note duration is mainly by trial as too short a duration is just a click. Low pitched notes must have time for at least a full excursion. A 30 cycle sound is 30 cycles per second which is 0.0333 seconds. This short a period is not suitable for pleasing sounds.

As you experiment don't expect too much from the tiny speaker. Try elevating the computer a little to let the sound out.

## INFORMATION

The Electronic Technology Today, Inc. company at P. O Box 240, Massapequa Park, NY 11762, distributes a large number of books published in England by Bernard Babani. There are also some Sams technical books. The English books, mostly small, 4 3/8 x 7, are mainly in the \$5 to \$6 range with about 100-150 pages. A catalog is available.

Books of particular interest to us computer users are:

Continued on page 6

Amstrad Reference Book  
 Computer Music Projects  
 The Art Of Programming The 1 K ZX81  
 \* \* \* \* \* 16K ZX81  
 \* \* \* \* \* ZX Spectrum  
 20 Programs For The ZX Spectrum And 16K Spectrum  
 How to Write ZX Spectrum and Spectrum + Games Programs  
 An Introduction To Programming The Sinclair QL  
 An Introduction to QL Machine Code  
 More Advanced Programming With The Sinclair QL  
 Into The QL Archive  
 Counting On the QL Abacus  
 Writing With QL Quill  
 Drawing On QL Easel  
 \*An Introduction To Z 80 Machine Code  
 \*A Z 80 Workshop Manual  
 \*Easy Add-ON Projects For Spectrum, ZX 81, And Ace.  
 An introduction To Computer Peripherals  
 \*Micro Interfacing Circuits Book 2  
 Note: these books will be reviewed.

See book review this issue for the book on printers

There also other books on computer operations, communications, Robots, etc.

Dick Wagner

+++++

Here is a program that will interest the mathmetically inclined as well as the students in your family. At least try it out and see if you can decipher how it arrives at a solution. It works on any of our computers. Just input the result of each division as called for, you won't see any inputs.

```

10 PRINT "SELECT A NUMBER (1 TO
100). CALL IT N."
20 PRINT "N/3=?"
30 INPUT A
40 PRINT "N/5=?"
50 INPUT B
60 PRINT "N/7=?"
70 INPUT C
80 LET N= 70*A+21*B+15*C
90 FOR Z=1 TO 5
100 IF N>105 THEN LET N=N-105
110 NEXT Z
120 PRINT AT 6,6;"YOUR NUMBER IS
";N

```

## PROGRAM REVIEW

Dick Wagner

Personal Portfolio Manager  
 Timex Sinclair Software  
 1 3/4 minute tape for T/S 2068  
 Price: about \$10.00  
 RMG Enterprises

Recently I had the need to obtain a better analysis of the few securities I own. It was hoped that this program would fill my needs.

In operation, a basic menu provides choices for entering a new stock (required to get the program going), and entering additional stock purchases, either as an extension or as new stock. This group covers the data of each stock as dollar cost x number of stocks purchases and date of purchase. The report of any one stock performance or the portfolio performance is obtained by the input of current stock prices. The sale of stocks can also be entered.

The stock file is saved to tape as data, strings and numeric. The menu provides for the data save and data load. There seems to be no program save other than to break and save.

After investments have been entered as above the user can call up two different kinds of reports, that of individual stock, or the portfolio. Among the items reported in the individual stock feature is the average cost per share. The current price produces the unrealized gain (loss) and the percent unrealized gain (loss). A horizontal bar chart depicts the first. This report can be sent to a 2040 printer.

The portfolio report option gives a performance picture of a select stock in comparison with the portfolio. This report will give a history of transactions for the select stock that can be printed. The report also displays active stocks by name, current value, cost, and unrealized percent gain or loss for each stock. A total summary is given including the net gain or loss of your portfolio. This report can also be printed out. While data can be saved, these reports cannot be

Continued on page 8

## FROM THE EDITORS DESK

This issue is being mailed later than usual due to The Editor being in the sunny? south and not getting home to do the job.

The March meeting developed a new idea for our monthly meetings. Now that there is a considerable range of expertise in programming available, plus extensive experience in various programs and hardware on the part pf some members, it was suggested that a part of each Meeting could be devoted to various programming techniques to assist other members.

We all know that that there are ways to speed up BASIC, ways to economize memory space, ways to combine BASIC and machine code, how to program for other storage systems, to name some ideas. Dennis Jurries has volunteered to do a quarter hour for the first instruction session. My guess is that this will not be adequate time in most cases.

Your Editor volunteered for the second instruction on re-vitalizing VU-CALC (2068) to use a large printer. It was suggested that volunteers be lined up for at least 2 meetings in advance so there would be ample time to organize subject Matter.

As our HELP column didn't seem to generate much input this just might be the way to go. It does seem that a question at a meeting does generate a lot of discussion.

When one considers the wide range of program subgect Matter available, the 4 or so orphan computers members are using, modems, storage systems, printers, interfaces, and even robots (someone will make a robot one of these days), this discussion period will be very popular.

For myself, I will be working on a light pen described in the book "Easy Add-on Projects for Spectrum, ZX81 & Ace". I'll be asking for help to program it to DRAW.

## MORE BIG PRINTER

Dick Wagner

Large printers have methods for setting TOP OF FORM (top of page) and FORM FEED (FF). The Manual will explain these settings. In general once a page length is established for your printer, the operator can cause the printer to advance to the top of the next sheet (the perforation line). Thus, once a printer is set up for a specific sheet length (as 11 inches) TOP OF FORM means the first print line position will be duplicated for each sheet of paper.

On my printer, positioning the top of the paper even with the tear bar and then pressing the TOP OF FORM button will establish the relationship for the center of the first print line of each sheet at 1/2 inch. The usual maximum number of print lines is 60 so at 6 lines/inch this is 10 inches and the length of printed space is  $10 \times 1$  character height or about 10.1 inches. Thus the establishing of the first line 1/2 inch down will permit a 60 line page length.

With the Perforation Skip function, an overflow of lines beyond 60 will automatically start printing on the next sheet 1/2 inch down from the top. This can be canceled so there is a continuous printing to the next pages.

This information is essential when setting up the plan for positioning on a sheet of paper so multiple pages will look the same. For single pages such as a letter, first position the sheet at a reference point for the top first line and then advance the paper to the desired first line position. TOP OF FORM will set the first line of the next sheet the same.

When using a word processor there may be some duplicate commands so either the printer switches should be used to cancel the printer or the WP commands should be canceled. As an example, on MSCRIPT there is also a line feed so if one is not canceled a double line space results.

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Continued from page 6

saved.

I experienced some problems in using this program because my data and needs did not always fit the program. While the program will handle up to 50 investments, data for each stock is limited to 12 transactions. I got around this by using the same stock name again as a new stock. As each stock is given a number this method works but totals and reports need watching and some hand work is required to reach totals of a single stock.

The user will require some tricks for such things as income stocks as these dividend stocks are more than just growth stocks. Perhaps such income can be treated as purchase money for a suedo stock at \$1.00 per stock and show the current value at the same value.

This program lacks the ability to add notes where appropriate. Also no past data shows to make it easy to input rows of data. However once all past data is recorded the program works fine in this respect. There is a way to display total data up to 12 lines.

The Personal Portfolio Manager is a helpfull aid to tracking investments and it appears to meet the needs of a small investor who is not deep inso this activity. As the program is in BASIC it would be possible to make some changes.

##### -8- #####

#### CCAT/S

1419 1/2 7TH Street  
Oregon City, OR 97045

#### \* NOTICE \*

MACHINE CODE CLASS

See you all at the next meeting,  
Saturday April 11th, 1pm to 4pm at  
Portland Community College's Sylvania  
Campus, Science & Technology Building,  
Room B15.

#### SUBSCRIPTION\_RATES

FREE SUBSCRIPTION WITH PAID  
CCAT/S MEMBERSHIP-\$15.00/YR  
NON-MEMBER RATE - \$ 8.50/YR

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